Creativity and Innovation in Entrepreneurship

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CREATIVITY, INNOVATION AND ENTERPRENEURSHIP

MODULE 1

Introduction

Creativity is a process by which a symbolic domain in the culture is changed. New songs, new ideas, new machines are what creativity is about Mihaly(1997). Creativity is the ability to make or otherwise bring into existences something new, whether a new solution to a problem, a new method or device, or a new artistic object or form. Wyckoff (1991) defines creativity as new and useful. Creativity is the act of seeing things that everyone around us sees while making connections that no one else has made. Creativity is moving from the known to the unknown. Culture exerts a negative force on creativity according to Pearce (1974), however, "were it not for creativity, culture itself would not be created."

No entrepreneur or enterprise, however successful and big, can continue to hold a place of leadership unless it recognizes that modern business operates in a world of galloping change which creates new problems, risk and opportunities and for which they have to mobilize the enterprise's resources before changes make their impact felt. To do successfully, the entrepreneur and enterprise should know where this firm is going and how the firm will get there. This is turn requires a clear definition of the company's business which will enable it to continually adopt operations to the realities of the market place, 'the very corner stone of survival and growth"

Innovation is defined as adding something new to an existing product or process. The key words are adding and existing. The product or process has already been created from scratch and has worked reasonably well. When it is changed so that it works better or fulfils a different need, then there is innovation on what already exists. Innovation is the successful exploitation of new ideas.

All innovation begins with creative ideas. C creativity is the starting point for innovation. Creativity is however necessary but not sufficient condition for innovation. Innovation is the implantation of creative inspiration.

THE PRINCIPLES OF CREATIVITY

People become more creative when they feel motivated primarily by the interest, satisfaction, and challenge of the situation and not by external pressures; the passion and interest – a person's internal desire to do something unique to show-case himself or herself; the person's sense of challenge, or a drive to crack a problem that no one else has been able to solve.

Within every individual, creativity is a function of three components:

1. Expertise

2. Creative thinking skills
3. Motivation.

Expertise encompasses everything that a person knows and can do in the broad domain of his or her work- knowledge and technical ability. Creative thinking refers to how you approach problems and solutions- the capacity to put existing ideas together in new combinations. The skill itself depends quite a bit on personality as well as on how a person thinks and works. Expertise and creative thinking are the entrepreneur's raw materials or natural resources. Motivation is the drive and desire to do something, an inner passion and interest. When people are intrinsically motivated, they engage in their work for the challenge and enjoyment of it. The work itself is motivating. People will be most creative when they feel motivated primarily by the interest, satisfaction and the challenge of the work itself-"the labour of love", love of the work- "the enjoyment of seeing and searching for an outstanding solution – a break through.

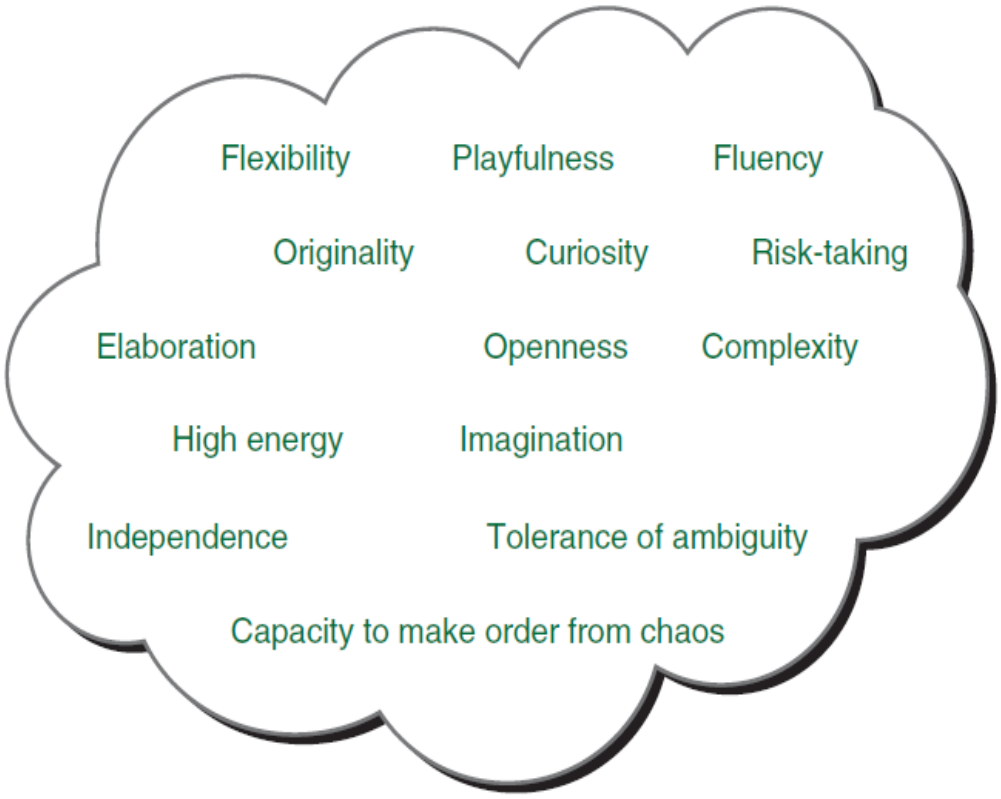
Creativity, according to Robert Gahim, consists of anticipation and commitment. Anticipation involves having a vision of something that will become important in the future before anybody else has it. Commitment is the belief that keeps one working to realize the vision despite doubt and discouragement.

The entrepreneur is primarily concerned with developing new products, processes or markets, the ability to bring something new, product, processes or markets, the ability to bring something new into the market. The entrepreneur indulges in original thinking more than any other person thinks and he is able to produce solutions that fly in the face of established knowledge. Entrepreneurs are inclined to be more adaptable and are prepared to consider a range of alternative approaches. They challenge the status quo, which can sometimes bring them into conflict with their colleagues. They dismiss their detractors and are sometimes regarded as aloof. Stoner and Wankel(1986).

Creative outcomes seldom emerge in an instant: a recognized process is involved, even if it appears to be rather chaotic. It begins with recognition of a problem or anticipation of an opportunity, and then, through understanding the situation and reflecting on the issues, new linkages are contemplated and possible new combinations of components are aired: From this emerge visible solutions or possibilities that are subjected to valuation, which may be continuous with judgment being suspended while the search process is prolonged in pursuit of genuine newness.

Entrepreneurs take bold creative steps but situations encourage creativity. Creativity is, however, enhanced when people have some freedom, but not too much; high internal commitment to the task; but not too high a commitment; high proportion of intense rewards, but some extrinsic rewards as well; some competition but not winnertake-all competition. Thompson (2001). Entrepreneurial activity depends on the process of innovation following creativity, not on creativity alone.

Some Characteristics of Being Creative



Source: Silvano Arieti: Creative Approaches to Problem Solving

Creative Thinking

Creative thinking as defined by Okpara is the act of generating solution to problems by the force of imagination and reasoning. It is an ability of the mind seeking to find answers to some life's questions. In a dynamic and changing world, the challenges of man are not static.They take on new forms and require a deep understanding of the creative approach. Celebrating achievements of great investors were not necessarily by accident but by product of deep creative thinking that has delivered the visible products we see and enjoy today. Bill gates, Steve Job, the Wright brothers, Ford, Rock feller etc have all at one time followed the part of creative thinking.

It is necessary to know that we live in a thinker's world. It is therefore, not surprising to see that the men/women who are ahead are those who see ahead with the eyes of their mind. Men and women who have engaged their minds in resourceful thinking to generate idea and products, which stand the test of time.

Every idea is a product of thinking and every product is the manifestation of idea naked in a thinker's mind. These are people who see problems as opportunities to improve and do something new or something better, people who keep these two vital questions on their mind.

“What can I do to make things better, or what can I do to make better things? This is the product of thinking.

In making things better, the goals are usually to improve productivity And efficiency, achieve speed, enhanced comfort and convenience, influence returns positively, and so much more. While in making better things, thinking can produce various alternative leading making better things, thinking can produce various alterative leading to the evolution of a completely new idea, new production processes, or a total departure from the conventional. Whatever the goal, thinking is an indispensable tool in the life of all successful entrepreneurs.

The celebrated discoveries of man are not accidents. The minds of men/women were engaged in creative thinking to deliver the visible products we enjoy today. Name them: Bill Gate and the computer, Graham Bell and the telephone, Michael Faraday and electricity, Isaac Newton and physical law of science, the Wight brothers and Aeroplane, Adenuga and Consolidated oil, Atedo peterside and Investment Banking and Thrust Company, Raymond Depokesi and Dear Communications. The list is endless. You too can join them as you begin to “ponder the path of your feet, that all your ways may be established.”

Thinking begins with engaging yourself in a conversation with yourself by yourself, in yourself. That is to reach a conviction and conclusion as to what steps to take and what strategies to employ. It is advisable to always have a pen and paper at hand to document your thoughts. It unveils every illusion around you.

The place of asking the right and relevant questions in thinking process cannot be overemphasized. Questions remain the string tool to provoke the mind to respond to issues ands discover new things. Creative thinking must, therefore, lead to the articulation of a strategy. A strategy is a way of organizing available resources to achieve results, what to do, what steps to take, the approach, the timing, positioning, all come to play when developing strategy. It is a common knowledge that successful entrepreneurs emerge not by strength or force but by superior strategy through creative thinking.

There are great business opportunities in applying creative thinking to solving mankind’s crying need for basic products and basic support services –better homes, better jobs, and a better way of life.

There are going to be tremendous opportunities in education because we need fundamental and radical changes in Nigeria if we are going to be competitive with other countries. However, being able to adapt ideas is what makes an entrepreneur successful. There is nothing wrong with learning from others ideas. Creativity comes in when you expand upon it, when you take an idea and make it move. The only way forward is to make our education to be adaptive and qualitative at all levels.

Research into the operation of human brain shows that each hemisphere of the brain processes information differently and that one side of the brain tends to be dominant over the other. The human brains develop asymmetrically, and each hemisphere tends to specialize in certain functions. The left-brain is guided by linear, vertical thinking (from one logical conclusion to the next); whereas the right brain relies on kaleidoscopic, lateral thinking (considering a problem from all sides and jumping into it at different points). The left-brain handles language, logic, and symbols; the right-brain takes care of the body's emotional, intuitive, and spatial functions. The left-brain processes information in a step-by-step fashion, but the right-brain processes it intuitively-all at once, relying heavily on images.

Left-brained, vertical thinking is narrowly focused and systematic, proceeding in a highly logical fashion from one point to the next. Right-brained, lateral thinking, on the other hand, is somewhat unconventional, unsystematic, and unstructured, much like the image of kaleidoscope whirling around to form one pattern after another. Right brain driven, lateral thinking lies at the heart of creative process. Those who have learned to develop their right-brained thinking skills tend to:

Always ask the question, "is there a better way?"

Challenge custom, routine and tradition

Be reflective, often staring out windows, deep in thought. (How many traditional managers would stifle creatively by snapping these people out of their "daydreams," chastise them for "loafing," and admonish them to "get back to work?".

Be prolific thinkers. They know that generating lots of ideas increase the likelihood of coming up with a few highly creative ideas.

Although each hemisphere of the brain tend to dominate in its particular functions, the two halves normally cooperate, with each part contributing its special abilities to accomplish those task best suited to its mode of information processing. Sometimes, however, the two hemispheres may even compete with each other, or one halve may choose not to participate. Some researchers have suggested that each half of the brain has the capacity to keep information from other! The result, literally, is that "the left hand doesn't know what the right hand is doing." Perhaps the most important characteristics of this split-brain phenomenon are that an individual can learn to control which side of the brain is dominant in a given situation. In other words, a person can learn to turn down" the dominant hemisphere (focusing on logic and linear thinking) and turn up" the right hemisphere (focusing on intuition and unstructured thinking) when a situation requiring creativity arises. To get a little practice at this "shift," try the visual exercises presented in Fig. 2.2. When viewed from one perspective, the picture in the middle portrays an attractive young lady with a feather in her hair and a boa around here shoulders. Once you shift your perspective, however, you will see an old woman with a large nose wearing a scarf on her head! This change in the image seen is the result of a shift from one hemisphere in the viewer's brain

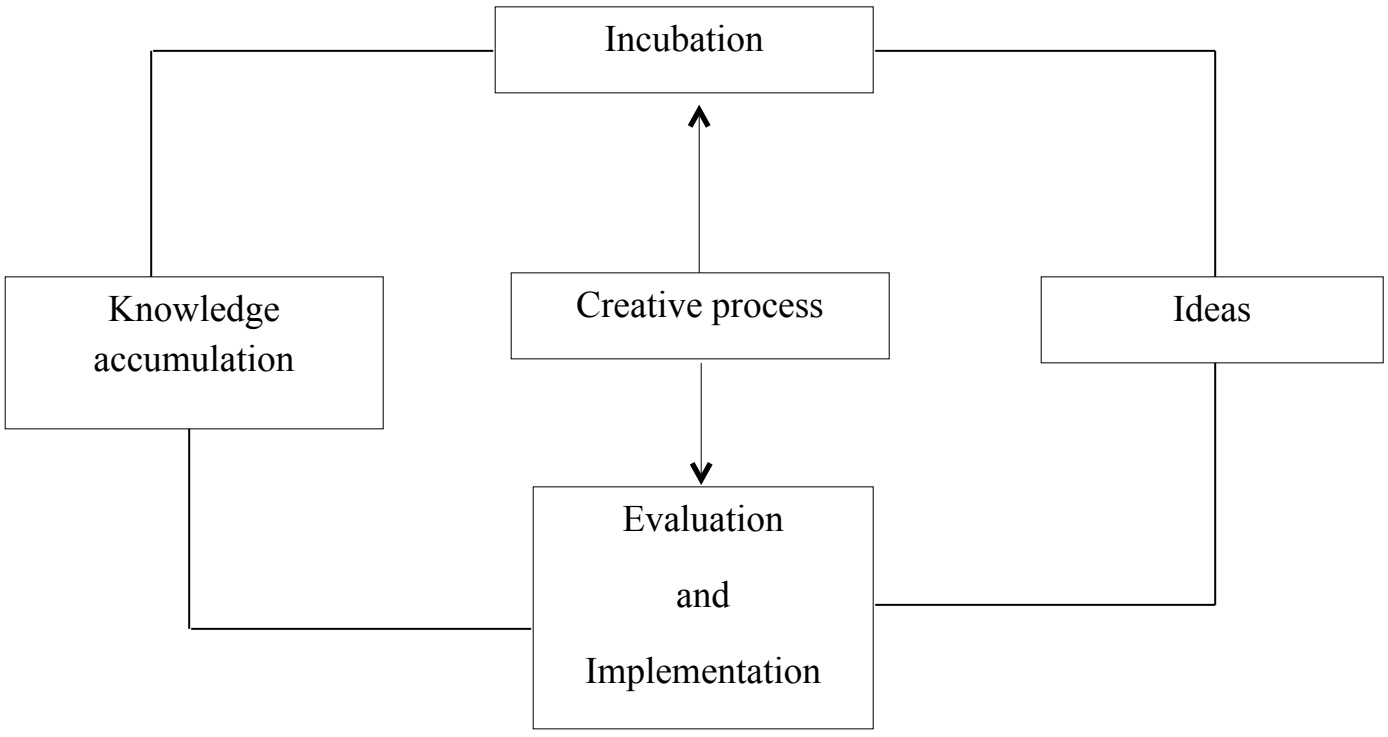
to the other. With practice, a person can learn to control this mental shift, tapping the pool of creativity that lies hidden within the right side of the brain. This ability has tremendous power to unleash the creative capacity of entrepreneurs. The need to develop this creative ability means that exploring inner space (the space within our brains)-not outer space-becomes the challenge of the century.

Successful entrepreneurship requires both left- and right brained thinking. Right brained thinking draws on the power of divergent reasoning, which is the ability to create multitude of original, diverse ideas. Left-brained thinking counts on convergent reasoning, the ability to evaluate multiple ideas and choose the best solution to a given problem. Entrepreneurs need to rely on right –brain thinking to generate innovative product, service, or business ideas. Then they must use left-grain thinking to judge the market potential of the ideas they generate. Successful entrepreneurs have learned to coordinate the complementary functions of each hemisphere of the brain, using their brain's full creative power to produce pragmatic innovation. Otherwise, entrepreneurs, who rarely can be accused of being "half-hearted" about their business ideas, run the risk of becoming "half headed."

The Critical Thinking Process

There are two aspects of creativity that is the Process and people. Process is defined as the particular goal(s) intended to be achieved while people are the resources that are used to achieve these goals.The creative process has four commonly agreed steps:

1. Background / knowledge accumulation
2. Incubation process
3. Idea experience
4. Evaluation and implementation



Accumulation of Knowledge

This involves extensive reading, conversation of experts, professional meetings and lectures and a general assumptions of information relating to the problem or history under such a study.

Incubation

Incubation process often occurs when individual engaged in activities totally unrelated to the subject or problems.

Steps involved to inducing incubation are as follows:

1. Engage in routine mindless activities
2. Exercise regularly
3. Play
4. Think about the problem before falling asleep
5. Practice self-hypnotize.

Idea

This is often known as the creative process which is mostly gotten before the solution an individual is seeking being discovered.

Ways to speed up idea includes:

1. Daydream the problem
2. Practice your hubby
3. Work in a leisurely environment
4. Put the problem on the back corner
5. Keep a note close every time to record at any time (e.g late night or early morning)
6. Ensure break while working

Evaluation and Implementation

Evaluation is the assessment of the success or failure of a particular objective or goal. A successful entrepreneur can easily identify ideas that are workable and have the skill to implementing it. But where failure is noticed an adjustment can be made successful to accomplishing the stated objectives.

Things to be done before implementing an idea:

1. Increase your energy level with proper exercise, diet and rest
2. Educate yourself in the business planning process
3. Test your idea with knowledgeable people
4. Educate yourself in selling process
5. Seek advice from others
6. Learn about the organizational policy and practices.

Blocks and Barriers to Creative Thinking

How can entrepreneurs learn to tap their innate creativity more readily? The first step is to break the barriers to creativity that most of us have created over the years. We now turn our attention to these barriers and some suggested techniques for tearing them down.

However, creativity has widely been described as the ability to develop new ideas and to discovery new ways of looking at problems, threats and opportunity. Creativity tools can be classified in many different manners. McFadzean (1998) has developed a framework for classifying creativity tools using three categories:

i. **Paradigm preserving**, where neither new elements nor relationships between the elements of the problem are introduced.

ii. **Paradigm stretching**, where either new elements are introduced or new relationships between the elements of the problem are conceived. Tools include- Checklists, Metaphor, Role storming, Heuristic Ideation Technique and Reversal.

iii. **Paradigm breaking**, where both new elements and new relationships between the elements are introduced. Tools include- Picture Stimulation, Rich Pictures, Imagining etc.

There are three broad, overlapping categories of blocks:

i. **Personal blocks:** examples include: lack of self-confidence or self-image; a tendency to conform; a need for the familiar, habit-bound thinking; emotional numbness; saturation; excessive enthusiasm; various values and cultural influences; and lack of imaginative control.

i. **Problem-solving blocks** are strategies, skills, or behaviours that inhibit ability to focus and direct problem-solving activities, generate and identify options and alternatives, or turn ideas into action. Examples include: solution fixedness, premature judgments, habit transfer, using poor problem-solving approaches, lack of disciplined effort, poor language skills, various perceptual patterns that limit intake and rigidity.

ii. **Environmental blocks** are those factors in your context, situation, or setting that interfere with your problem-solving efforts. This include: the belief that only one type of thinking is required for creative outcomes, resistance to new ideas, isolation, a negative attitude toward creative thinking, autocratic decision making, reliance on experts, and various strategic blocks that limit the use of resources

More than fifty years ago, Osborn (1953) introduced creative tools and a model for solving problems in creative ways. Since that time, this model, called Creative Problem Solving (CPS) has become one of the most widely used approaches for applying creative thinking. Studies have shown that CPS was one of the most effective methods for promoting creative-thinking skills

Specific Barriers to Creativity

1. Searching to the one right answer
2. Focusing on being logical
3. Blindly following the rules

4. Constantly being practical
5. Viewing play as frivolous
6. Becoming overly specified
7. Avoiding ambiguity
8. Fearing mistakes and failure

Creative Approaches to Problem Solving

In problem-solving, the barriers that block solutions must be addressed. Thus, in problem solving, do a bit of divergent thinking, and information gathering before selecting a solution and taking an action. All entrepreneurs require a lot of analytical thinking and creativity in problem solving.

What is a problem?

- A problem is a condition that is not acceptable. It may involve tangible and/or intangible elements such as people, processes, systems, states of affair, products, circumstances, or any business or personal situation.
- The term "problem" simply refers to any discrepancy between the current situation and a desired future situation.

There are three common types of problems:

i. **It's Broken:** An unsatisfactory change in the status quo.

ii.**It's Boondoggled:** An inability to achieve an expected result.

i**ii. It's Just Messy:** There is a lack of clarity. Current understanding is insufficient.

Examples of problems: bad product, bad vision, customer dissatisfaction, poor sales, low profit, low revenue, loss of corporate image.

Creative Problem Solving (CPS)

- CPS is a technique to approach a problem or address a challenge in an imaginative way; it helps us flex our minds, find path-breaking ideas and take suitable actions thereafter.
- CPS can be used to look for interesting, out-of-the-box solutions to problems.
- To qualify as CPS, the solution must solve the stated problem in a novel way, and the solution must be reached independently (Williams Scott).
- Creative problem solving tools help us flex our minds, redefine the problems we face, find path-breaking ideas and take suitable actions thereafter.
- It’s all about overcoming our mind’s conceptual blocks and finding multiple solutions to effectively solve a problem that we face (Richa, 2014).

CPS Versus Routine Problem Solving

- The creative problem solving process differs from routine problem solving in that with routine problem solving a pre-established method for solving the problem is used.
- With creative problems solving, any pre-established method for solving the problem is either unknown or not used.
- Creative problem solving involves a hunt for new solutions.
- While routine problem solving uses old solutions (Williams Scott).

Examples of Creative Approaches to Problem Solving

- **Having idea power**: Generating many, varied, and unusual ideas that have high potential to address the problem or meet the challenge in a fresh and valuable way.
- **Being persistent**: Investing energy and talent in taking a wild or highly unusual idea and shaping, refining, and developing the idea into a workable solution.
- Considering aspects of the situation surrounding the solution to enable agreement of your solutions by others.
- Being sensitive to the context and the people who may be involved with your solution and working to obtain support and acceptance.
- Having a variety of possible approaches to take for any given situation, challenge, or problem. Being aware of the power of process.
- Reflecting on many different factors in determining your technique (SilvanoArieti)

Examples of Non-Creative Approaches to Problem Solving

- Mindlessly defending the status quo.
- Being resistant to exploring new opportunities.
- Making and acting on faulty assumptions or incorrect data.
- Seeing the problem or challenge in only one way.
- Overlooking the need to improve, develop, or refine a tentative solution.
- Moving on before ensuring agreement and acceptance by others.
- Premature completion or conclusion.
- Using an approach uncritically, just because it may have provided relief or results before.
- Reacting to a situation before reflecting on alternative ways of responding (SilvanoArieti).

Alex Osborn and Sidney Parnes divided the process of creative solving problems into six stages in the 1950s:

- Objective Finding
- Fact Finding
- Problem Finding
- Idea Finding
- Solution Finding
- Acceptance Finding (VijaykrKhurana)

James Higgins - 101 Creative Problem Solving Techniques: The Handbook of New Ideas for Business

Higgins describes **eigh**t basic stages in the creative problem solving process:

- Analyzing the environment
- Recognizing a problem
- Identifying the problem
- Making assumptions
- Generating alternatives
- Choosing among alternatives
- Implementing the Chosen Solution
- Control

The following, based on Van Gundy (1988's) description, is a very brief skeleton of a very rich process, showing it in its full '6 x 2 stages' form:

- **Stage 1:** Mess finding
- **Stage 2:** Data finding
- **Stage 3:** Problem finding
- **Stage 4:** Idea Finding
- **Stage 5:** Solution finding
- **Stage 6:** Acceptance finding

However creative problem solving has been divided into three stages by some scholars, involving the following 6 steps:

A. Explore the Challenge

- 1. Objective Finding
- 2. Fact Finding
- 3. Problem Finding

B. Generate Ideas

- 4. Idea Finding

C. Prepare for Action

- 5. Solution Finding
- 6. Acceptance Finding

Another scholar, Jeffrey Baumgartner, proposed seven steps for creative problem solving.

Step 1: State what appear to be the problem.

Step 2: Gather facts, feelings and opinions.

Step 3: Restate the problem.

Step 4: Identify alternative solutions.

Step 5: Evaluate alternatives.

Step 6: Implement the decision.

Step 7: Evaluate the results.

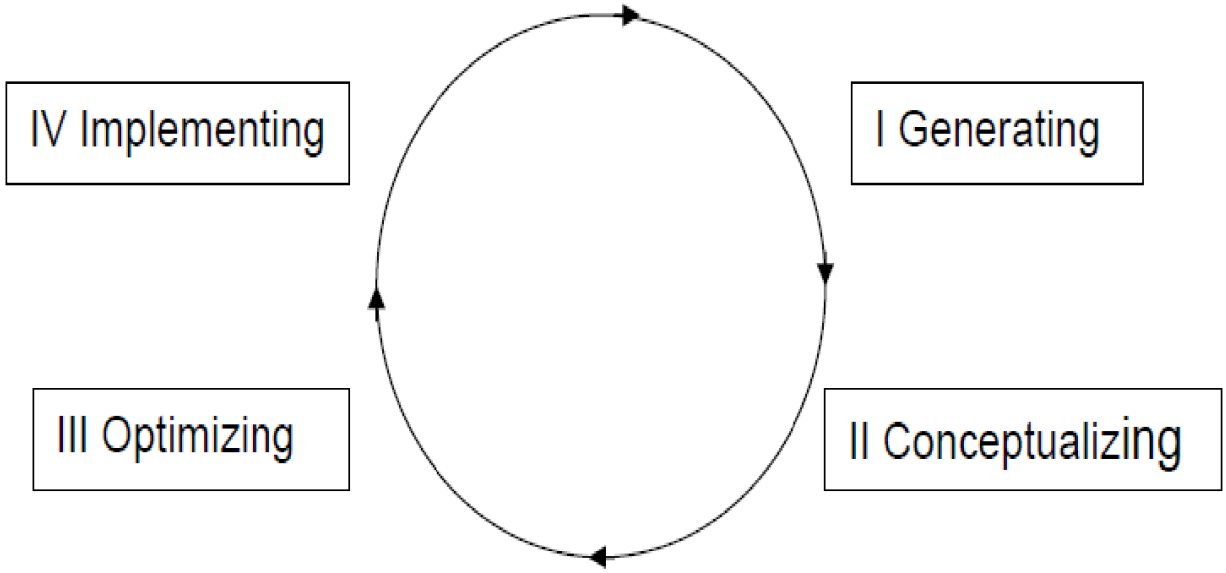
The Problem-solving Model

In the problem solving, scholars have proposed that the following steps must be followed.

- Identify the problem
- Gather adequate information about the causes of the problem
- Perceive and generate possible alternatives and be creative while considering alternative solutions
- Select the best solution
- Take action
- Review your action.

The Simplex CPS Approach

- Simplex is a group process for finding and solving problems;
- Identifying and overcoming challenges; and establishing and achieving goals.
- Use of Simplex allows individuals and organizations to be creative, innovative and to succeed in a world where fast-paced change is the order of the day.
- Simplex is a "complete" process of creative problem solving with four stages.
- The process provides a framework for using various tools as reported by (Vidal, 2004).



The Simplex creative process has four stages and eight steps which include:

Stage I Generating: Creating options in the form of new possibilities/problems that might be solved and new opportunities that might be capitalized upon. It is composed of two steps:

• Problem finding, and

• Fact finding,

Stage II Conceptualizing: Creating options in the form of alternate ways to understand and define a problem or opportunity and good ideas that help to solve it. It is composed of two steps:

• Problem defining, and

• Idea finding,

Stage III Optimizing: Creating options in the form of ways to get an idea to work in practice and uncovering all the factors that go into a successful plan for implementation. It is composed of two steps:

• Evaluating and selecting, and

• Action planning,

Stage IV Implementing: Creating options in the form of actions that get results and gain acceptance for implementing a change or a new idea. It is composed of two steps:

• Gaining acceptance, and

• Taking action.

What is a solution?

A solution is a man-made resolution to a problem. There are two common types of solutions:

- Bad: An unsatisfactory solution. The solution is more costly than desired, it creates new problems, or it doesn't last. Someone invariably loses.
- Good: A satisfactory solution. The desired objective is achieved within acceptable parameters and it lasts.

Creative Solution

The solution must solve a stated problem in a novel way, and the solution must be reached independently.

Types of creative solution:

1. The creative solution: Many times a solution is considered creative if components that are readily available can be used, and when there is a short time limit within which to solve the problem. These two factors are typical to the solutions shown in the MacGyver.
2. Innovations: "All innovations (begin) as creative solutions, but not all creative solutions become innovations" (Richard Fobes).
3. Inventions: If an innovation is unique, original and novel, it is considered an invention. It must be original - not known to people who are knowledgeable in the field of the solution.

Source: (SilvanoArieti)

Techniques for Improving the Creative Process

Teams of people working together usually can generate more and more-creative ideas. Four techniques that are especially useful for improving the quality of creative ideas from teams are brainstorming, mind mapping, TRIZ, and rapid prototyping.

Organizing a Brainstorming Session

Brainstorming

- The brainstorming technique is based on the capacity of the human brain to make associations.
- As in any session or meeting, there are certain rules that need to be followed in order to ensure that a brainstorming session produces good results. The session can be divided into three phases:
    - a preparation phase;
    - the brain-storming session; and
    - Evaluation and implementation of the results.

Specific steps in Brainstorming:

- Rules for Brainstorming:
- The more ideas the better!
- No discussion
- No idea is a bad idea
- Build on one another's ideas
- Display all ideas

The Benefits of Brainstorming

The benefits of a well-organized brainstorming session are numerous. They include:

- Solutions can be found rapidly and economically;
- Results and ways of problem-solving that are new and unexpected;
- A wider picture of the problem or issue can be obtained;
- The atmosphere within the team is more open;
- The team shares responsibility for the problem;
- Responsibility for the outcome is shared;
- The implementation process is facilitated by the fact that staff share in the decision-making process.

Brain writing

Brain writing is similar to brainstorming. The only difference is that the participants are given a set of coloured sheets of paper (between 5 and 20) and the ideas are first written down, one idea per sheet.

Mind Mapping

Mind mapping is a visual picture of a group of ideas, concepts or issues; using the mind mapping systems further enhances the brain writing method. (HalkaBalackova).

Specific steps in Mind Mapping

- Unblock your thinking.
- See an entire idea or several ideas on one sheet of paper.
- See how ideas relate to one another.
- Look at things in a new and different way.
- Look at an idea in depth.

Multi-voting

- Write down the numbers of the items you feel are the major causes of the problem.
- Share your votes by a show of hands.
- Eliminate those items with the fewest votes.

Triz

In 1946, GenrichAltShuller, a 22-year-old naval officer in the former Soviet Union, developed a process with a name derived from the acronym for the Russian phrase that translates as "theory of inventive problem solving" or TRIZ (pronounced "trees"). TRIZ is systematic approach designed to help solve any technical problem, what its source. Unlike brain –storming and mind-mapping, which are right-brained activities, TRIZ is a left-brained, scientific, step-by-step process that is based on the study of hundreds of the most innovative patents across the globe. Altshuller claimed that these innovations followed a particular set of patterns. Unlocking the principles behind those patterns allows one not only to solve seemingly insurmountable problems, but also to predict where the next challenges would

Rapid Prototyping

Generating creative ideas is a critical step in the process of taking an idea for a product or a service successfully to the market.

However, entrepreneurs find out that most of their ideas would not work, and that is where prototyping plays an important part in creative process. The premise behind rapid prototyping is that transforming an idea into an actual model will point out flaws in the original idea and will lead to improvement in its design. "If a picture is worth a thousand words, prototype is worth ten thousand," says Steve Vasallo of Ideo Inc.

The three principles of rapid prototyping are the three R's: rough, rapid, and right.

Models do not have to be perfect; in fact, in the early phases of developing an idea, perfecting a model usually is waste of time. The key is to make the model good enough to determine what works and what does not. Doing so allows an entrepreneur to develop prototypes rapidly, moving closer to a successful design with each iteration. The final R, right means building lots of small models that focus on solving particular problems with an idea. "You are not trying to build a complete model," says Vassallo. "You are just focusing on a small section of it."

What is a Creative Technique?

A technique is simply the way you move toward, advance, or come closer to something.

- A technique is a way of making change happen.
- A creative technique implies that you are attempting to advance toward an outcome that is new.
- With knowledge and skills for evaluation, a creative approach requires engagement of one's imagination, intelligence, courageous attitude because no ready-made answer exists.

TECHNIQUES AND TOOLS FOR CPS

Many of the techniques and tools for creating an effective solution to a problem can be categorized into four as outlined below:

- **Mental state shift:** Creativity techniques designed to shift a person's mental state into one that fosters creativity. These techniques are described in creativity techniques. One such popular technique is to take a break and relax or sleep after intensively trying to think of a solution.
- **Problem reframing:** Creativity techniques designed to reframe the problem. For example, reconsidering one's goals by asking, "What am I really trying to accomplish?" This can lead to useful insights.
- **Multiple idea facilitation:** These creativity techniques are designed to increase the quantity of fresh ideas. This approach is based on the belief that a larger number of ideas increase the chances that one of them has value.
- **Inducing change of perspective:** The creative-problem-solving techniques are designed to efficiently lead to a fresh perspective that causes a solution to become obvious. This category is especially useful for solving especially challenging problems (Alex Osborn).

Conceptual Blocks to CPS

The following conceptual blocks (the 4Cs) can keep us from solving problems creatively (Williams Scott).

- Constancy: Once we have learned a solution to a problem, we often try to reuse that solution when encountering similar problems. Creative problem solving requires being able to define and solve problems in multiple ways.
- Commitment: Although our minds can process a lot of information, we often get committed to overly simplistic assumptions about things.

- Compression: To quickly solve a problem, we often artificially limit the information we use in defining the problem and searching for solutions.
- Complacency: Sometimes we give up too easily when we encounter problems for which we don't immediately see solutions.

Overcoming Conceptual Blocks

- Play around with the problem definition, state the problem as you see it and then try to see it in other ways.
- **Brainstorming**: produce many possible solutions.
- **Training:** promote creative problem solving through training.
- **Pattern breaker**: think beyond cognitive ruts and gain a fresh perspective on the problem.
- **Excursion**: travelling can also be helpful.
- **Shake-up**: exercises gets one out of comfort zones and more receptive to unusual ideas. It can encourage taking risks, relaxation, and new ideas

INNOVATION

Innovation is the process of bringing the best ideas into reality, which triggers a creative idea, which generates a series of innovative events. Innovation is the creation of new value. Innovation is the process that transforms new ideas into new value- turning an idea into value. You cannot innovate without creativity. Innovation is the process that combines ideas and knowledge into new value. Without innovation an enterprise and what it provides quickly become obsolete.

The dictionary defines innovation as the introduction of something new or different. Innovation is the implementation of creative inspiration. The National Innovation Initiative (NII) defines innovation as "the inter-section of invention and insight, leading to the creative of social and economic value" Innovation is "value" – the creation of value adding value to customer's satisfaction- "delighting the customers". Innovation is the basis of all competition advantages, the means of anticipating and meeting customer's needs and the method of utilization of technology.

Innovation is fostered by information gathered from new connections; from insights gained by journeys into other disciplines or places; from active, collegial networks and fluid open boundaries. Innovation arises from organizing circles of exchange, where information is not just accumulated or stored, but created. Knowledge is generated a new from connections that were not there before. Wheatley (1994).

Innovation requires a fresh way of looking at things, an understanding of people, and an entrepreneurial willingness to take risks and to work hard. An idea doesn't become an innovation until it is widely adopted and incorporated into people's daily lives. Most people resist change, so a key part of innovating is convincing other people that your idea is a good one – by enlisting their help, and, in doing so, by helping them see the usefulness of the idea- Art Fry.

Enterprises throughout the world are experiencing what can be legitimately described as a revolution: rising energy and material costs, fierce international competition, new technologies, increasing use of automation and computers. All these are major challenges, which demand a positive response from the entrepreneur and management if the enterprise is to survive and prosper. At a time when finance is expensive, the firm's liquidity is bordering on crisis, the need for creativity, and innovation is more pressing than ever and as competitors fall by the way side, the rewards for successful products and process are greater.

The instigation of new development is the responsibility of the enterprises themselves, which, through experience, are aware of the difficulties created when undertaking innovative investments in a period of great uncertainty. Innovation calls for special entrepreneurial and management skills, the cooperation of a committed workforce, finance and a climate which will create the optimum overall conditions to encourage success.

Joseph Schumpeter (1934) believes that the concept of innovation, described as the use of an invention to create a new commercial product or service, is the key force in creating new demand and thus new wealth. Innovation creates new demand and entrepreneurs bring the innovations to the market. This destroys the existing markets and creates new ones, which will in turn be destroyed by even newer products or services. Schumpeter calls this process "creative destructions."

The Elements of Innovation

Innovation is the successful development of competitive advantage and as such, it is the key to entrepreneurship. The entrepreneurs are the "dreamers", who take hands on responsibility for creating innovation. It is the presence of innovation that distinguishes the entrepreneur from others. Innovation, must therefore, increase competitiveness through efforts aimed at the rejuvenation, renewal, and redefinition of organizations, their markets or industries, if business

are to be deemed entrepreneurial. Fiona Fitzpatrick identified the following elements of innovation:

1. Challenge: What we are trying to change or accomplish-the "pull"
2. Customer focus: Creating value for your customers – the "Push"
3. Creativity: Generating and sharing the idea(s)- the "brain"
4. Communication: The flow of information and ideas –the "life blood"
5. Collaboration: People coming together to work together on the idea(s) - the "heart."
6. Completion: Implementing the new idea-the "muscle".
7. Contemplation; Learning and sharing lessons lead to higher competency-the "ladder"
8. Culture: The playing field of innovation includes:
   - ❖ Leadership (sees the possibilities and positions the team for action-the role model)
   - ❖ People (diverse groups of radically empowered people innovate –the source of innovation)
   - ❖ Basic values (trust and respect define and distinguish an innovative organization-the backbone).
   - ❖ Innovation values (certain values stoke the fires that make the "impossible" possible-the Spark).
9. Context: Innovation is shaped by interactions with the world.

Forms of Innovation

In a start-up, the entrepreneur is regarded as the key actor in developing a business idea, marshalling resources, and creating an enterprise to bring a new product or service to the market. In a competitive business environment, the entrepreneur and the enterprise should continue to seek lout now opportunities and make the necessary arrangement to convert them into new goods and services. Innovation should, therefore, impregnate the entire enterprise for the creation and invention of competitive edge and relevancy in the market place.

Innovation can take several forms:

i. Innovation in processes, including changes and improvement to methods. These contribute to increases in productivity. Which lowers cost and helps to increase demand.
ii. Innovation in products or services. While progressive Innovation is predominant, radical innovation opens up new markets. These lead to increases in effective demand which encourages increases in investment and employment.
iii. Innovation in management and work organization, and the exploitation of human resources, together with the capacity to anticipate techniques.

Innovation centres on people, culture, structure, process and technology. Innovation is the process through which the entrepreneur converts market opportunities into workable, profitable,

and marketable ideas. Innovation is an application of something creative that has a significant impact on an organization, industry or society. Entrepreneurship is the continuing generation of Innovation in response to perceived opportunities in the business environment.

In this approach, entrepreneurship is therefore concerned with newness: new ideas, products, services or combinations of resources aimed at meeting the needs of consumers more efficiently. Entrepreneurship has been described in terms of the ability to create something from practically nothing. It is initiating… and building an enterprise rather than … watching one. It is the knack for sensing opportunities where others see chaos, contradiction and confusion. It is the ability to build a "founding team" to complement your own skills and talents. It is know –how to find, marshal and control resources. Finally, it is a willingness to take calculated risk. Timmons (1989).

Challenge for Innovation

The place of innovation in commercial success is the development or adoption of new concepts or idea that leads to any form of increased organizational or social benefit. Innovation is vitally concerned with novel approaches, new ideas, and originality, and it the means by which ideas are exploited for competitive advantage. The present economic reform of the Nigerian Government- National Economic Empowerment and

Development Strategy (NEEDS) calls for less dependence on imported materials – goods and services and technology. However, if this dependence is to be successfully broken, three activities should receive adequate priority management attention and the commitment of resources in this century.

1. The need to investigate our latent natural resources for the possibility of transmitting them into goods and services. This would require a scientific analysis of the various resources available in the country, the identification of their properties, and a determination of the extent to which those properties can be harnessed.
2. The need to develop new technology which can be used to process the raw materials which may result from the investigation of natural resources suggested above and with a view to producing goods and services from them.
3. The need to adapt existing technology so as make them accept local materials are substitutes. A complete change from an almost total dependence on foreign research and technology is source of products is called for.

Entrepreneurial success in this century, therefore, depends on the seriousness with which innovative activities are undertaken by the enterprises in terms of indigenizing input sourcing and the development of new indigenous products.

The society in general will benefit tremendously from the individual enterprises undertaking innovative activities rather than leaving such to government agencies. As Max Weber has observed "when innovation is channelled through autonomous competing enterprises, risk is encouraged and the social curse of unsuccessful innovation can be limited. Society can afford

to have an enterprise failure, but society cannot afford to have government failure. Government economic planners proceeding by law or fiat have no flexible mechanism comparable to a market in which they can assess the probabilities of any given risk and measure its results". No enterprise, however diversified or big, can therefore, rest on its oars and past achievements. It becomes imperative for an enterprise to continuously challenge itself to finding new and better ways of doing the old things or in fact create new ways of doing new things. The new environment may therefore call for new product designs, new production techniques, composition and packaging which take cognizance of the dynamic business environment.

Success in business today demand constant innovation. Generating fresh solutions to problems and the ability to inherit new products or services for a changing market are part of the intellectual capital market that gives an enterprise its competitive edge. In a dynamic environment, success comes from looking for the next opportunity and having the ability to find hidden connections and insights into new products or services, desired by the customer.

While brain-power is the most valuable resource, great ideas are in short supply. Successful entrepreneurs place high premium on attracting and keeping talent because wealth flows directly from innovation. Creativity is the root of innovation. It is a process and a skill which can be developed and managed throughout the entire enterprise.

One of the first steps in creating a culture of innovation is unleashing the creativity in yourself. The challenge is getting to see the world with fresh ideas and to develop fresh solutions. Speed innovating is a proven approach for helping you develop breakthrough solutions in the shortest possible time.

Creative ideas are not enough for your business to survive. You need a process organization and culture that will help you maximize your creative assets. This is innovation capability that helps your pull together the best thinking within your business, enabling you to connect the organization dots.

Shapiro argues that perpetual and pervasive innovation is the key to long –term sustainable success in the relentless competition for customers. To survive any competition, you must rapidly and repeatedly re-invent yourself. The road map to reinvention starts by applying the seven R's.

1. Rethink your underlying assumptions.
2. Reconfigure how you carry out work.
3. Resequence when work takes place
4. Relocate where work is done to cut down on handoffs and delays.
5. Reduce the frequency of carrying our specific activities.
6. Reassign who does the work by asking if anyone else could achieve the same result more effectively and efficiently.

7. Retool the technology that supports getting the work done. Could new software and automated equipment transform our ways of working?

Principles of Innovation

The major innovation principles are:

i. Action oriented: innovators must always be active, searching for new ideas and opportunity or sources of innovation.
ii. Make the product, process or services simple and understandable: people must readily understand how the innovation works.
iii. Make the product or services customer based: innovation always must keep the customers in mind. The more the innovator has the end user in mind, the greater the chances the concept will be accepted and used.
iv. Start small: innovators do not attempt project or development on a grandiose scale. They should begin small ant then build and develop allowing for planned growth and expansion in the right manner and at the right time.
v. Aim high: innovators do aim high for success by seeking a niche
vi. Try / test/ revise: innovator should always follow the rule to try / test and revise. The helps work out any flaws in the product, process or service.
vii. Learn from failure: innovation does not guarantee success. More importantly failure often given rise to innovation.
viii. Follow a mile-stone schedule: every innovator should follow a schedule that indicates mile-stone accomplishment. Although, the project may run ahead or behind schedule, it is still important to have a schedule in order to plan and evaluate the project.

Sources of Innovation

- Unexpected world event including natural disasters, act of terrorism, wars have given rise to innovating new product and services.
- Process need
- Industry and market structures
- Demographic
- Changes in perception
- New knowledge

Theories of Innovation

Different theories of innovation that has been put forward to prove the phenomenon of innovation example of which would be discussed as follows;

Diffusion Theory of Innovation

According to diffusion theory of innovation, once innovation occurs, innovation may be spread from the innovator to other individuals and groups. However, this process has been proposed that the life cycle of innovations can be described using the 'S' curve or diffusion curve. The 'S' curve derives from an assumption that new products are likely to have 'product life' that is a start-up phase, a rapid increase in revenue and eventually decline.

Innovative entrepreneurs will typically be working on new innovations that will eventually replace older ones. Successive S-curve will come alone to replace older ones and continue to drive upwards.

Different elements of diffusion theory of innovation are as follows:

- The innovation
- Communication channels
- Time
- Social system

The Disruptive Innovation Model

Innovation often outstrips the capacity of the market place to assimilate it. Companies almost seek to solve the hardest problems and to dos so at a faster rate than consumers can absorb, failing to recognize that the performance level customers can utilize is relatively flat. The characteristics of sustaining innovation and disruptive innovation are separate and distinct. It is given as;

Sustaining Innovations	**Disruptive Innovations**
Better	Different
Premium price	Low price

Next generation	Good enough for now
Leap forward	Leap down
complicated	Simple

Sources: Anthony (2005)

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In other to survive an entrepreneurs must use the innovation model appropriately to where they are positioned in the market, therefore seven pillars of innovation are very essential to all entrepreneurs who want to meet their goals and have competitive advantage.

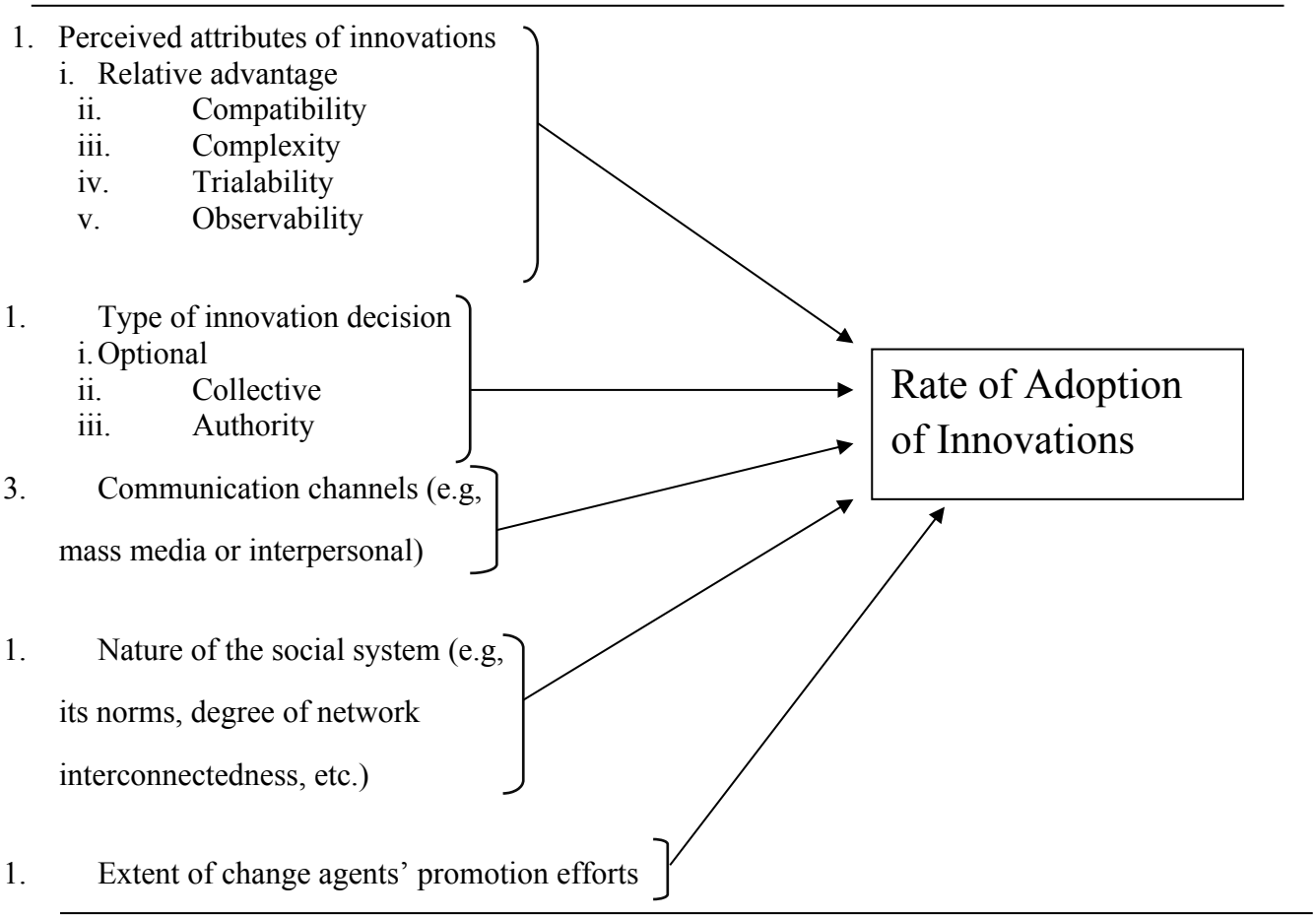
Remove	**Insert**
Using one process for all innovations	Different resources and processes
Talking about the importance of innovation	Live and breadth innovation
Assuming business as usual works	Block corporate antibodies
Expecting projects to get big fast	Be patient for growth and impatient for profits
Looking for "right-stuff" managers	Find "Schools of Experience" staff
Assuming you have all the answers	Take an external perspective looking or "know-how" not "know-who".
Keeping a tight handle on doing things right	Embrace failure that allows for learning and adapting

Source: Anthony (2005).

Rogers (1995) develops five variables which affect that adoption rate of any particular innovation as well as the rejection of the innovation; these includes;

i. Perceived attributes of innovations
ii. Type of innovation decision
iii. Communication channels
iv. Nature of the social system
v. Extent of change agents' promotion efforts

Variables Determining the Rate of Adoption of Innovation



(Rogers, 1995, p.207)

Creativity and Innovation in an Entrepreneurial Organization

Growth and development cannot be sustained without additional innovations (usually in the product or services or in its marketing) with additional innovation, firms become "glamorous" introducing new products is seen as part of the process of innovation, which is always seen as the engine driving continued growth and development.

The winning performance of the entrepreneur and the organization focuses on:

- Competing on quality not prices
- Domination of a market niche
- Competing in an area of strength
- Having tight financial and operating controls
- Frequent product or services innovation (particularly important in manufacturing).

Innovation Management Process

Management, response to optimal technical change and innovation are crucial duties of an entrepreneur, failure to accomplish these may undermine the basis of his /her venture existence. There are four-stage processes which is relevant for managing and responding to technical change and innovation which is by its nature useful for enterprise existence.

These are:

Stage 1: This involves the scanning of the environment for relevant signal indicating opportunity for change.

Stage 2: This involves deciding which of this signal to respond to, based on the strategic view of how the enterprise can best developed

Stage 3: This involves acquiring resources to enable a firm respond to his signal and might be as a result of research in development.

Stage: Implementing the project; developing both the technology and market in other to respond effectively.

Conclusion

Successful entrepreneurs require an edge derived from some combination of a creative idea and a superior capacity for execution. The entrepreneur's creativity may involve an innovation product or a process that changes the existing order. Or entrepreneur may have a unique insight about the course or consequence of an external change. Entrepreneurship is the vehicle that drives creativity and innovation. Innovation creates new demand and entrepreneurship brings the innovation to the market. Innovation is the successful development of competitive edge and as such, is the key to entrepreneurship. Creativity and Innovation are at the heart of the spirit

of enterprise. It means striving to perform activities differently or to perform different activities to enable the entrepreneur deliver a unique mix of value. Thus the value of creativity and innovation is to provide a gateway for astute entrepreneurship—actively searching for opportunities to do new things, to do existing things in extraordinary ways. Creativity and Innovation therefore, trigger and propel first-rate entrepreneurship in steering organization activities in whatever new directions are dictated by market conditions and customer preferences, thereby delighting the customers to the benefit of the stakeholders. Innovation also means anticipating the needs of the market, offering additional quality or services, organization efficiently, mastering details, and keeping cost under control.

No doubt, the current economic environment is a volatile and violent one. The new environment demands renewed dynamism of approach. Creativity and innovation is the new name of the game. Only the discerning organizations can manage the changes inherent in the new environment. It is the duty of the entrepreneur to keep his/her organization lean, young, flexible, and eager for new things to continuously delight the customers, which is the purpose of every business.

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